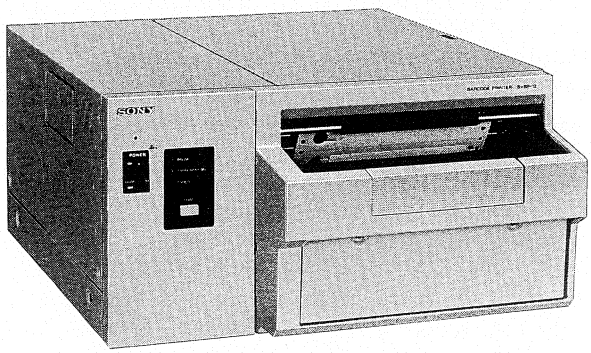
SONY

BARCODE PRINTER

BVBP-12/14



LMS Library Management System

MAINTENANCE MANUAL (Vol. 1)

1st Edition (Revised 2)

Serial No. 10001 and Higher (USA CANADA)

Serial No. 20001 and Higher (EK)

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SECTION 1
INSTALLATION

1-1. OPERATIONAL ENVIRONMENT

Operating temperature range: 5 °C to 40 °C
(Good air circulation is essential to prevent internal heat build-up. Do not block the fan on the rear panel.)
Storage temperature range : -20 °C to +60 °C
Operating humidity range : 25% to 80%
(no condensation)

1-2. INSTALLATION SPACE

The outer dimensions of the set are shown in the figure 1-1. Assure that the vertical clearance above the BVBP-11 is at least 30 cm to replace the ribbon and the label.

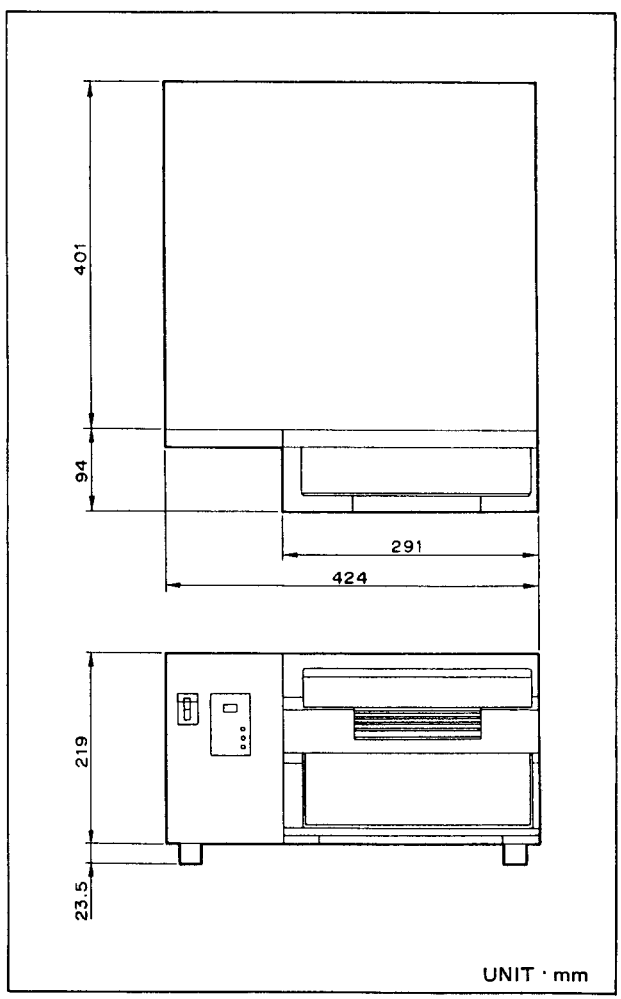


Fig. 1-1

1-3. OPERATING VOLTAGE

Set the voltage selector on the connector panel to the appropriate line voltage (100 V, 120 V, 220 V, 240 V). (Fig. 1-2, 1-3)

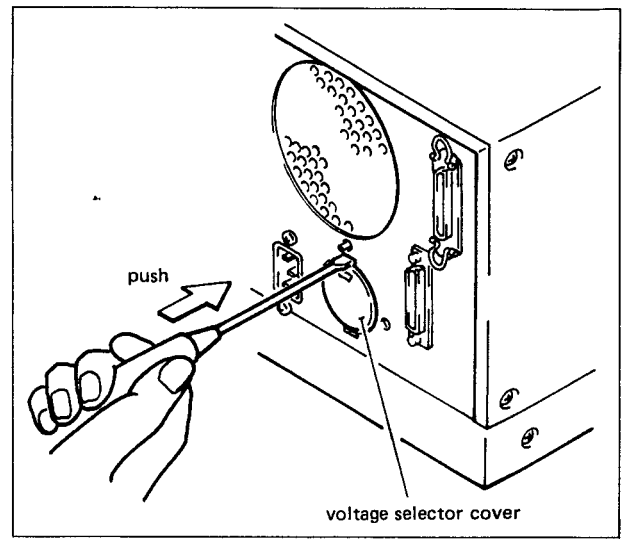


Fig. 1-2

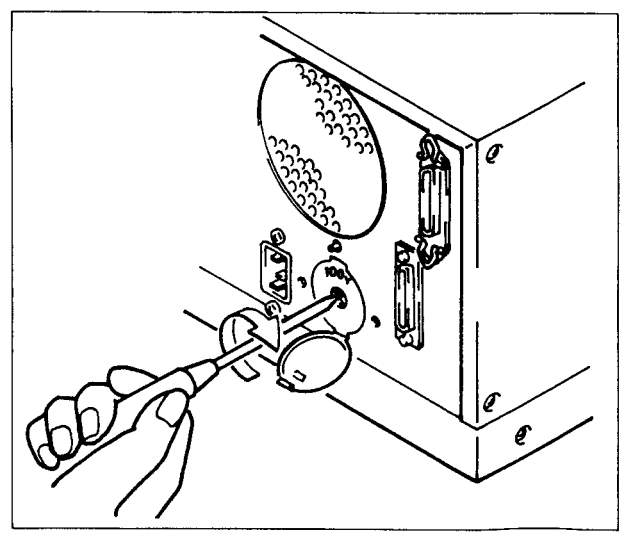


Fig. 1-3

1-4. SELECT SWITCH SETTING

The following select switches are located on the left side panel. The swiches must be used according to each system configulation.

(1) DIP SW 1

Bit 1: TEST MODE ON/OFF switch

Refer to Sec. 3-1 for details.

ON : TEST MODE

OFF: NORMAL MODE

When the set is shipped, the TEST MODE ON/OFF switch is set to the OFF position.

(2) DIP SW 2

Bit 1, Bit 2: BAUD RATE select switch

BAUD RATE	Bit 1	Bit 2
1200	OFF	OFF
2400	ON	OFF
4800	OFF	ON
9600	ON	ON

When the set is shipped, BAUD RATE select switches, Bit 1 and Bit 2, are set to the ON position.

Bit 3: WORD LENGTH select switch

ON : 8

OFF: 7

When the set is shipped, the WORD LENGTH select switch is set to the ON position.

Bit 4: STOP BIT select switch

ON : 2

OFF: 1

When the set is shipped, the STOP BIT select switch is set to the OFF position.

Bit 5: PARITY CHECK ON/OFF select switch

ON : PARITY is EVEN.

OFF: PARITY is ODD.

When the set is shipped, the PARITY CHECK ON/OFF select switch is set to the ON position.

Bit 6: PARITY CHECK select switch

Select the processing of the PARITY BIT.

ON : PARITY BIT is ON.

OFF: PARITY BIT is OFF.

When the set is shipped, the PARITY CHECK select switch is set to the ON position.

Bit 7: CHARACTER select switch

ON : Japanese

OFF: English

When the set is shipped, the CHARACTER select switch is set to the OFF position.

Bit 8: INTERFACE select switch

ON : RS232C I/F control

OFF: CENTRONICS I/F control

When the set is shipped, the INTERFACE select switch is set to the OFF position.

1-5. RACK MOUNTING

The BVBP-12/14 can be mounted in a 19-inch standard rack. When being mounted, it is recommended to use the following SONY rack mount angle RMM-950 (optional accessory).

1. Attach the inner members of the rack mount angle to the right and left side panels with the three mounting screws (B4x6), which are supplied with this set.

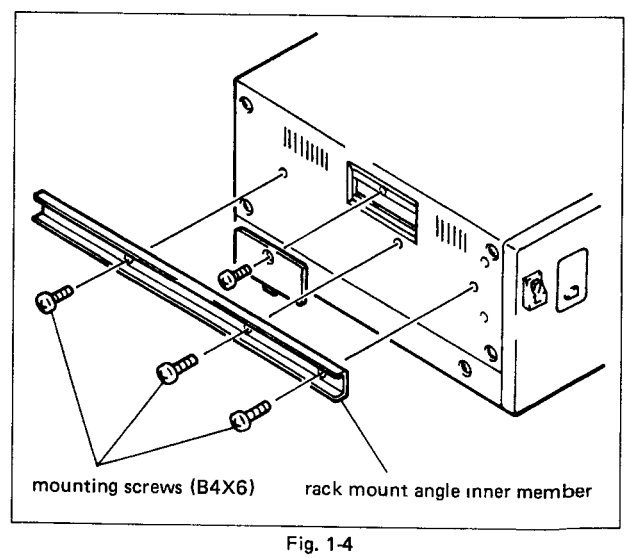


Fig. 1-4

2. Remove the four legs located under the set.
3. Attach the outer member bracket of the rack mount angle to the rack.
4. Attach the rack mount handles on the right and left side panels with the two mounting screws (B4x10), which are supplied with this set.

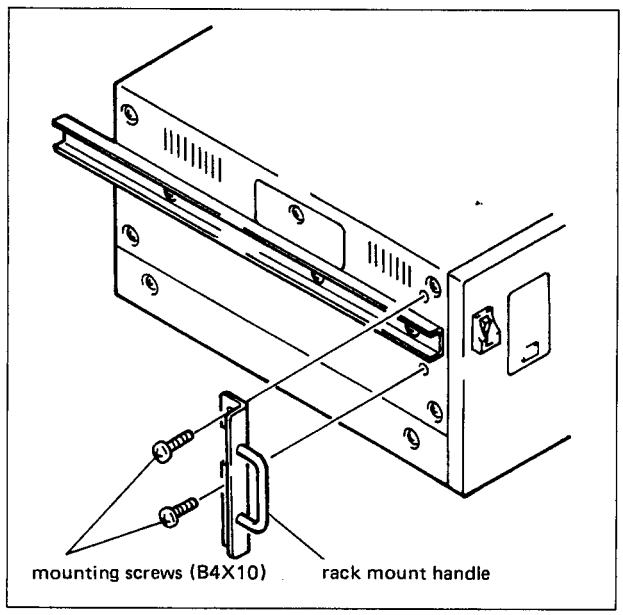


Fig. 1-5

1-6. SUPPLIED ACCESSORY

Supplied BVBP-12/14 accessories are as follows.

1. Printer Ribbon
A printer ribbon can print four thousand Barcode Labels.

2. Barcode Label
A roll of the Barcode Label contains fourteen hundred Barcode Labels.

3. Head Cleaner
Use for cleaning the Thermal Head. The head cleaner is provided as a service part.
part number : 9-987-785-01

4. Power Cord

5. Operation Manual

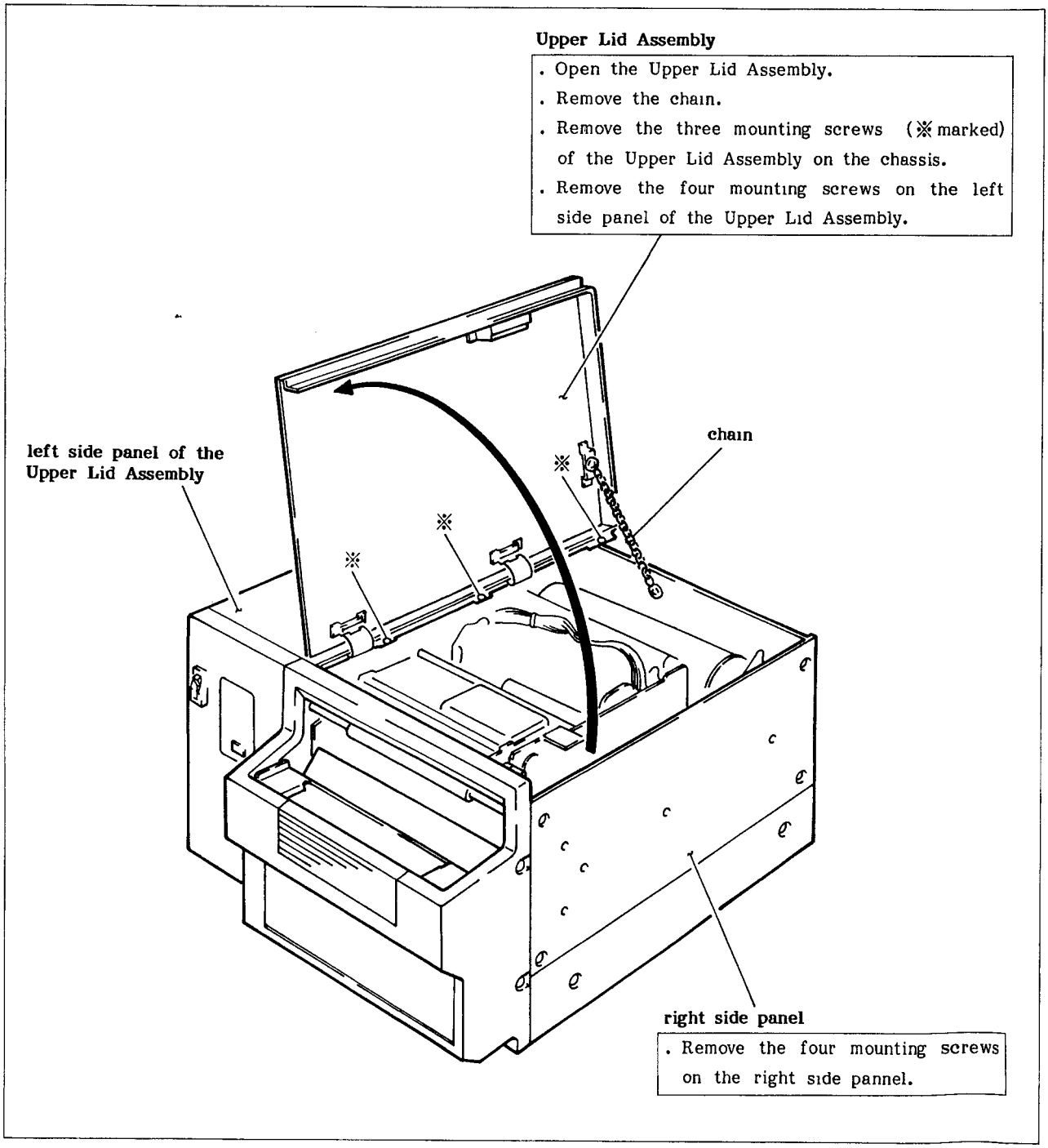
6. Maintenance Manual

1-7. OPTIONAL ACCESSORY

SONY PRINTER RIBBON (BVCR-11)
SONY BARCODE LABEL (BVCP-10)
SONY RACK MOUNT ANGLE (RMM-950)

SECTION 2
SERVICE INFORMATION

2-1. REMOVAL OF CABINET


Upper Lid Assembly
. Open the Upper Lid Assembly.
. Remove the chain.
. Remove the three mounting screws (※ marked) of the Upper Lid Assembly on the chassis.
. Remove the four mounting screws on the left side panel of the Upper Lid Assembly.
left side panel of the Upper Lid Assembly
chain
※
※
※
right side panel
. Remove the four mounting screws on the right side pannel.

2-2. SELF DIAGNOSTICS

When the POWER switch is turned on, LED1 through LED8 on the CPU board light for two seconds. While lit, the CPU board performs the following checks, and the PAUSE indicator on the front panel is also lit.
If this circuit operates normally, the eight LEDs on the CPU board and the PAUSE indicator on the front panel are turned off.
If the circuit malfunctions, the LED corresponding to the error will remain lit and the ERROR indicator on the front panel will light.

(1) ROM Check
Checksum test of ROM area is performed. If the error is located, LED1 and 2 corresponding to each ROM remains lit and the ERROR indicator on the front panel will light.

2) Charactor ROM Check
Checksum test of Charactor ROM area is performed. If the error is located, LED3 remains lit and the ERROR indicator on the front panel will light.

(3) RAM Check
WRITE/READ test of RAM area is performed.
If the error is located, LED4 and 5 corresponding to each RAM will remain lit and the ERROR indicator on the front panel will light.

(4) CTC Check
CTC check is performed.
If the error is located, LED6 remains lit and the ERROR indicator on the front panel will light.

(5) Head Snapping Check
Head Snapping Check of Thermal Head is performed. If snapping occurs, LED8 blinks and the ERROR indicator on the front panel will light.

2-3. SPARE PARTS

1. Safety related Components Warning
   The shaded and ⚠ -marked components are critical to safety. Replace only with same components as specified.

2. Replacement Parts supplied from Sony Parts Center will sometimes have a different shape from the original parts. This is due to "the standardization of genuine parts".

3. The parts as shown "s" is SP column on the exploded view and the electrical spare parts list are normally stocked for replacement purpose.
   The parts as shown "o" in SP column are not normally required for routine service work. These parts are not normally stocked, so allow for additional delivery time when ordering.

2-4. REMOVAL PROCEDURE OF LABEL AFFIX MECHANISM AND INSTALLATION PROCEDURE OF BLANK PANEL

(1) Remove the four mounting screws of the right side panel.
(2) Remove the four mounting screws of the hinge on the Label Affix Mechanism.
(3) Remove the Label Affix Mechanism from the front of the set.
(4) Install the Blank Panel.

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that the TEST MODE be operated as follows before using this set every day so that the Barcode Label is printed out in the normal position clearly.

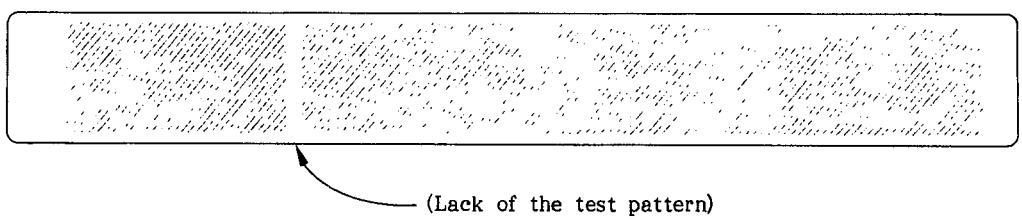
3-1. TEST MODE

When Bit 1 of DIP SW1 on the CPU board is turned on, the TEST MODE is active. The selection of four TEST MODEs is performed by the Rotary switch SW1. TEST MODEs 1 through 3 are started by pushing the FEED button on the front panel.
The TEST MODE can be performed even though Upper Lid Assembly is open.

1. TEST 1
This TEST MODE tests the head-to-label-contact of Thermal Head and print position.
. Set the Rotary switch SW1 to "1".
. Push FEED button.

(i) normal Test pattern

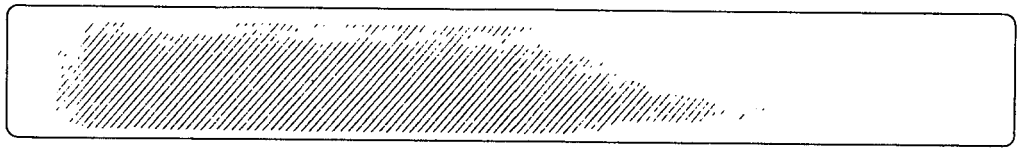
(ii) insufficient Test pattern



. When this test pattern is produced, clean the Thermal Head. If insufficient print is still evident after cleaning, check the circuit.

NOTE: The TEST pattern is designed to detect insufficient print that would be difficult or impossible to see with barcode print.

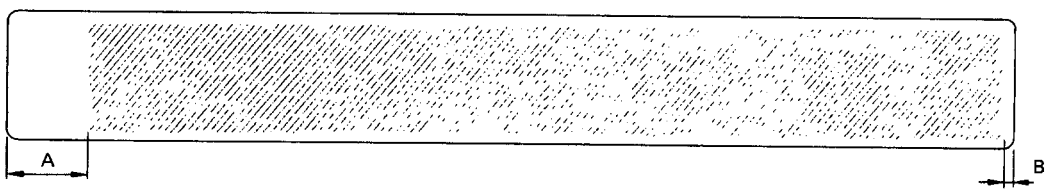
(iii) insufficient TEST pattern
(shading)



The shading is recognized on the right and left sides of TEST pattern.

. When this Test pattern is produced, perform the Sec. 4-2 Shading Adjustment.

(iv) Test pattern
(printed position is no good.)



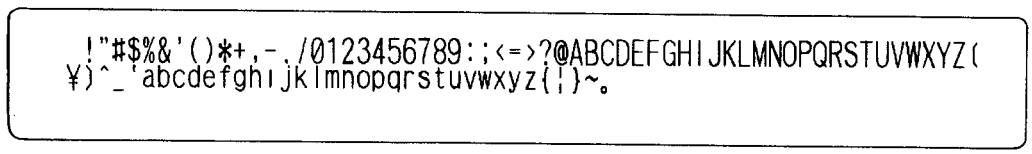
Spec. : A ≧ 4 mm, B ≧ 4 mm

2. TEST 2

This TEST MODE tests the print of characters.

. Set the Rotary switch SW1 to "2".

. Push the FEED button.



Confirm the characters.

3. TEST 3

This TEST MODE prints the standard Barcode Label.

. Set the Rotary switch SW1 to "3".

. Push FEED button.

. Confirm that the standard Barcode Label is printed.

4. TEST 4

This TEST MODE checks the operation test of DIP SW2. LED1 through LED8 on CPU board are lit corresponding to Bits of DIP SW2.

. Set the Rotary switch SW1 to "4".

. Confirm that LED1 through LED8 are turned ON/OFF corresponding to each Bit when Bit 1 through Bit 8 of DIP SW2 are turned ON/OFF.

3-2. CLEANING OF THERMAL HEAD

- When Sec. 3-1 TEST MODE is performed and insufficient print is produced, clean the Thermal Head.
- When the printer ribbon is replaced under normal operation, clean the Thermal Head.
- When the printer ribbon is cut for any reason, clean the Thermal Head thoroughly.

Cleaning method

1. Open the Upper Lid Assembly.
2. Lift the Lock Lever, cancel the Lock and then lift the Print Block. (Fig. 3-1, 3-2)
3. Clean the Thermal Head by using the head cleaner. (Fig. 3-3)

NOTE: Don't touch the head with hard materials because the head is easily damaged.

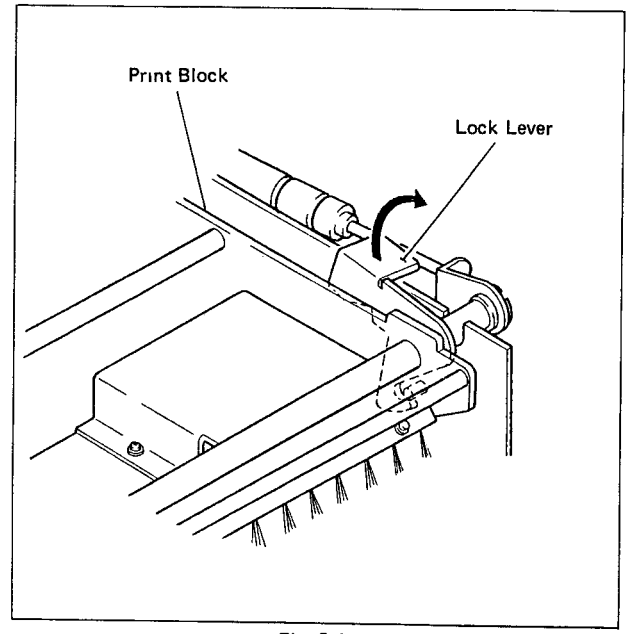


Fig. 3-1

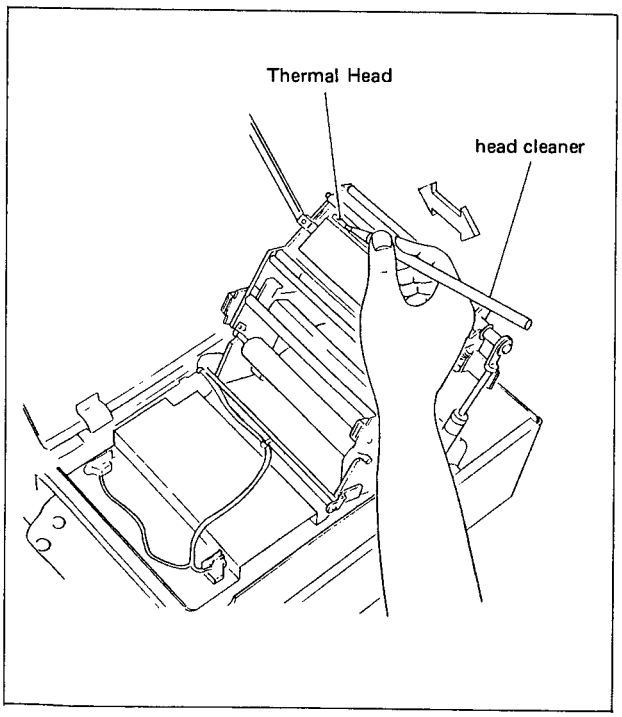


Fig. 3-3

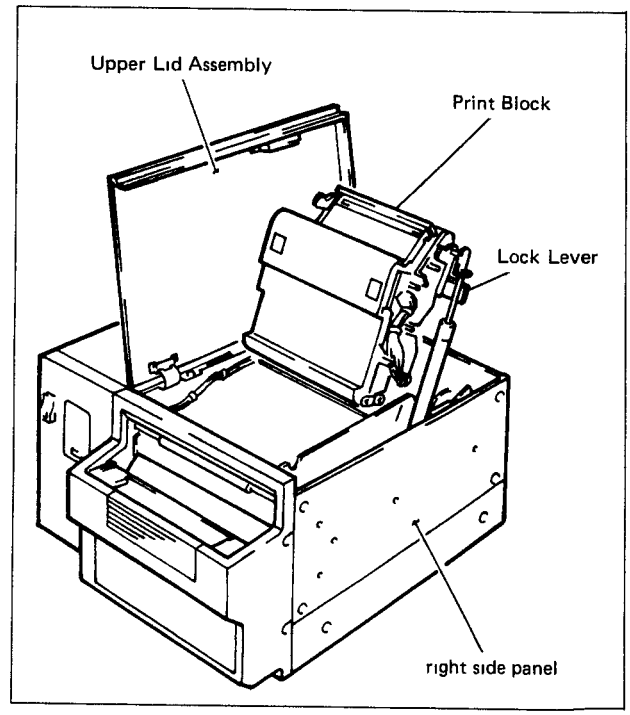


Fig. 3-2

3-3. OVERHAUL

Recommended overhaul schedule:

Replacement Parts	Replacement Time
Thermal Head	: Replace the Thermal Head after one million labels are printed.
Motors	: Replace the Motors when the actual working time is about 3000 hours.

SECTION 4
MECHANICAL ALIGNMENT

. Perform the Mechanical Alignment as follows:

Sec. 4-1 Label Feed Quantity Adjustment
↓
Sec. 4-2 Printing Position Adjustment (with Label Affix Mechanism)
↓
Sec. 4-3 Printing Position Adjustment (continuous printing)

. When the printing is performed with the Label Affix Mechanism, the adjustment of Sec. 4-3 doesn't have an effect on the printing quality at all. However it is recommended that Sec. 4-3 Printing Position Adjustment be performed at the same time, preparing for the continuous printing when the Label Affix Mechanism is removed.
On the other hand, when the set is used with continuous printing, the adjustment of Sec. 4-1 and 4-2 doesn't have an effect on the printing quality at all.

4-1. Label Feed Quantity Adjustment

. Perform this adjustment when the Label Affix Mechanism is installed.
. When the adjustment is incorrect, the label can't be affixed on the correct position.

Mode: TEST 1 mode

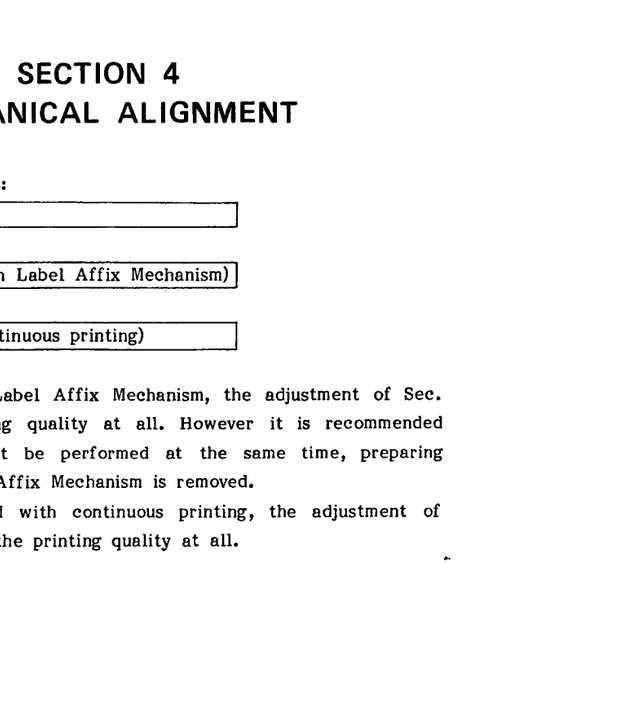
Check procedure:

(1) Insert the cassette tape into the Label Affix Mechanism.
(2) Perform the TEST 1 mode.
(3) Affix the printed label by TEST 1 mode.
(4) Confirm the position of the affixed label is satisfied to the specification.

Adjustment procedure:

. When the label is affixed as shown Fig. 3.
(1) Measure the length of (a).
(2) Referring to the table, find the numerical value which is plus and is close to (a).
(3) Perform the Dip Switch 1 setting suiting to the step (2).

"Example"
. When (a) is 0.5 mm.
. +0.465 mm is closest in the table.
. The Dip Switch 1 setting suiting to +0.465 mm is as follows:
Bit 5: ON, Bit 6: OFF
Bit 7: ON, Bit 8: ON



(4) Re-confirm the specification following to the check procedure. If the specification isn't met, adjust again.

. When the label is affixed as shown Fig. 4.
(5) Measure the length of (b).
(6) Referring to the table, find the numerical value which is minus and is close to (b).
(7) Perform the Dip Switch 1 setting suiting to the step (6).

"Example"
. When (b) is 0.6 mm.
. -0.620 mm is closest in the table.
. The Dip Switch 1 setting suiting to -0.620 mm is as follows:
Bit 5: OFF, Bit 6: ON
Bit 7: OFF, Bit 8: OFF

(8) Re-confirm the specification following to the check procedure. If the specification isn't met, adjust again.

Dip Switch 1 Bit No.				(a) or (b)
5	6	7	8	
OFF	OFF	OFF	OFF	−1.240
OFF	OFF	OFF	ON	−1.085
OFF	OFF	ON	OFF	−0.930
OFF	OFF	ON	ON	−0.775
OFF	ON	OFF	OFF	−0.620
OFF	ON	OFF	ON	−0.465
OFF	ON	ON	OFF	−0.310
OFF	ON	ON	ON	−0.155
ON	OFF	OFF	OFF	±0
ON	OFF	OFF	ON	+0.155
ON	OFF	ON	OFF	+0.310
ON	OFF	ON	ON	+0.465
ON	ON	OFF	OFF	+0.620
ON	ON	OFF	ON	+0.775
ON	ON	ON	OFF	+0.930
ON	ON	ON	ON	+1.085

(mm)

4-1-1. Label Inclination Adjustment

Adjustment is performed when the label is not affixed at the right position by the field adjustment of DIP switch.

(Symptom 1) The label is not affixed in parallel with the cassette tape.

Check procedure:

(1) Feed the label.
(2) Release the lock of affixing assembly and open the cassette holder gently so as not to move the label.
(3) Measure the amount of protruding label with a scale. (Fig. 2)
(4) Adjust the position so that |A-B| < 0.5mm is realized.

Adjustment procedure:

When the label is as shown in Fig. 1.
If the label is protruding on one side, adjust the inclination of the roller to place the label in parallel with the cassette tape.

(1) Loosen the screws (a) when A > B and move the roller holder in the direction of C. (Fig. 3)
(2) Move the roller in the direction of D when A < B. (Fig. 3)

Repeat 1 to 4 of the check method.

Note: Do not move too much. Move less than 0.5mm at a time.

If the label is still inclined, repeat the parallel adjustment method.
If the label is placed in parallel, perform the label feed amount adjustment.

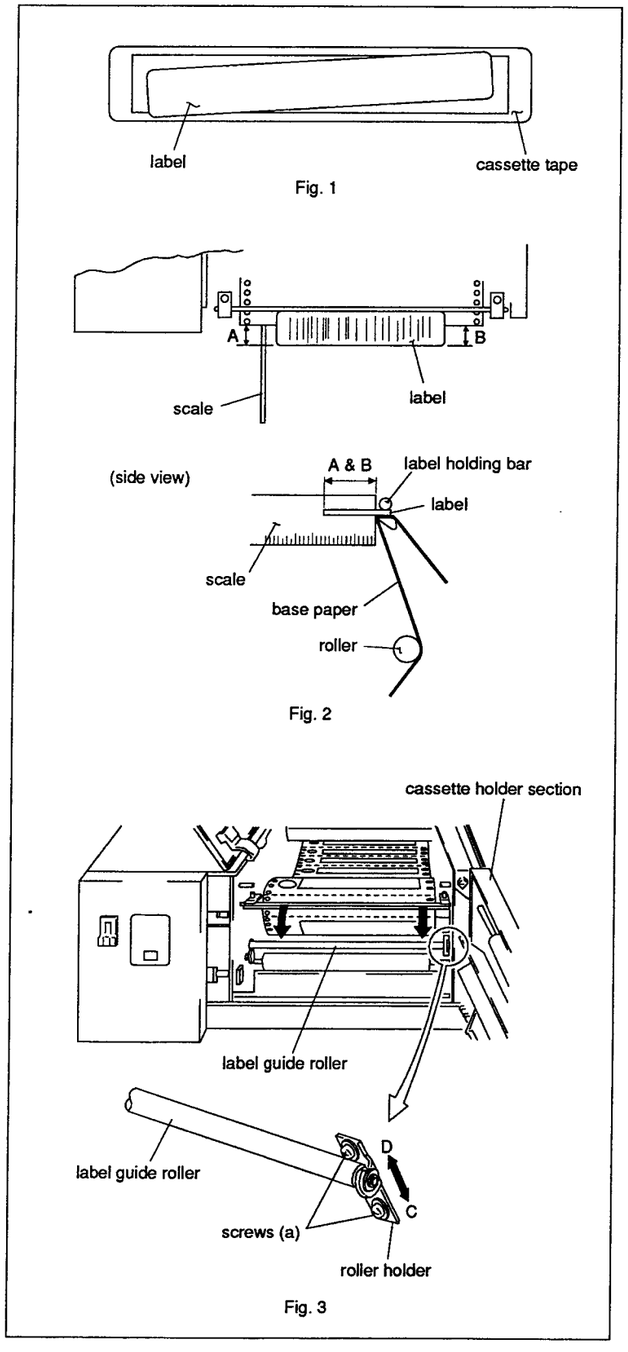


Fig. 1
Fig. 2
Fig. 3

(Symptom 2) The label has shrinks. (It is not affixed in parallel.)
Adjust the stamp roller.

Check procedure:

(1) Power off.
(2) Insert the cassette holder and raise the cassette tape gently to the stamp roller until one side of the cassette touches the stamp roller. (See Fig. 1)
(3) When one side touches the roller, check the clearance. (The clearance should be within the specification.)

Adjustment procedure:

(1) If the clearance is outside the specification, loosen the screws and adjust the bracket by moving it up and down. (See Fig. 2)
(2) Check if the clearance is within the specification by the check procedure.

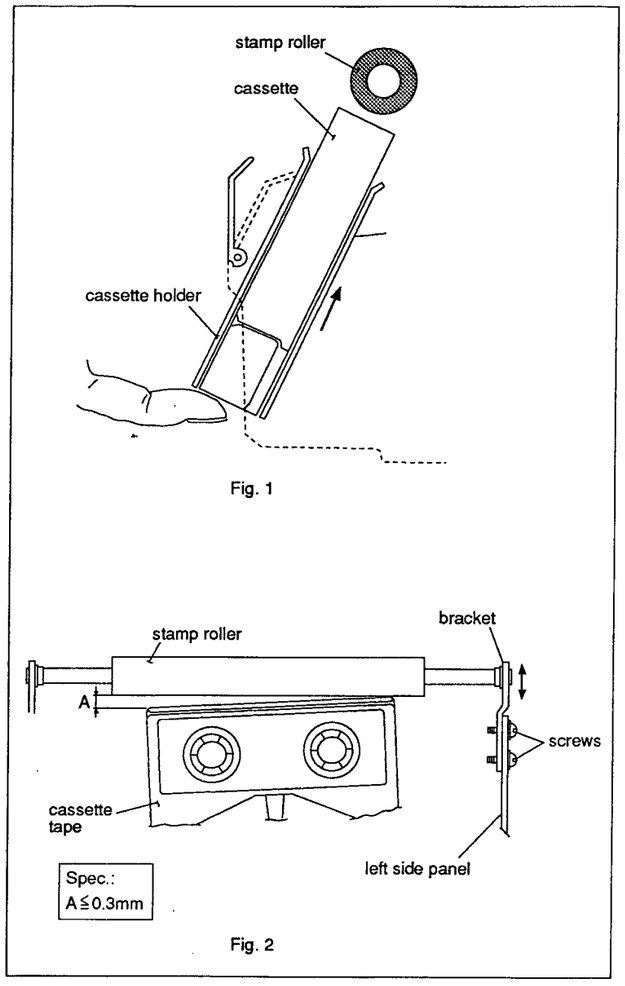
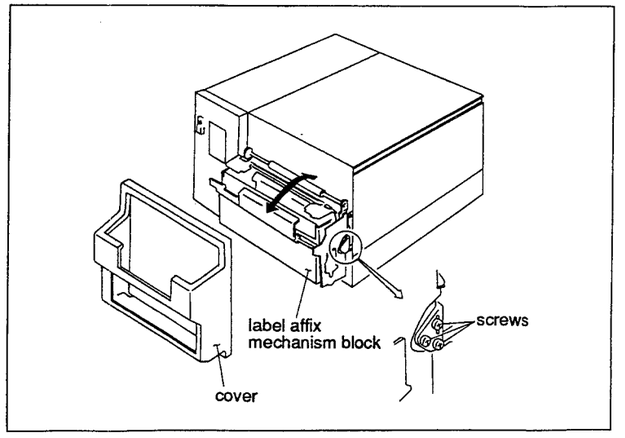


Fig. 1
Fig. 2

(Symptom 3) Adjustment cannot be made by the DIP switch only.

Adjustment procedure:

(1) Remove the cover.
(2) Adjust the setting of bit 5 through bit 8 of the DIP switch 1 in the range of -0.155 to +0.155mm.
(3) Loosen the three screws and adjust the whole label affix mechanism block in the direction of the arrow.
(4) Fix the screws and check the affixing operation.



4-2. PRINTING POSITION ADJUSTMENT (with Label Affix Mechanism)

. Perform this adjustment when the Label Affix Mechanism is installed.

Mode: TEST 1 mode

Check procedure:

(1) Insert the cassette tape into the Label Affix Mechanism.
(2) Perform the TEST 1 mode.
(3) Affix the printed label by TEST 1 mode.
(4) Confirm the position of the affixed label is satisfied to the specification.

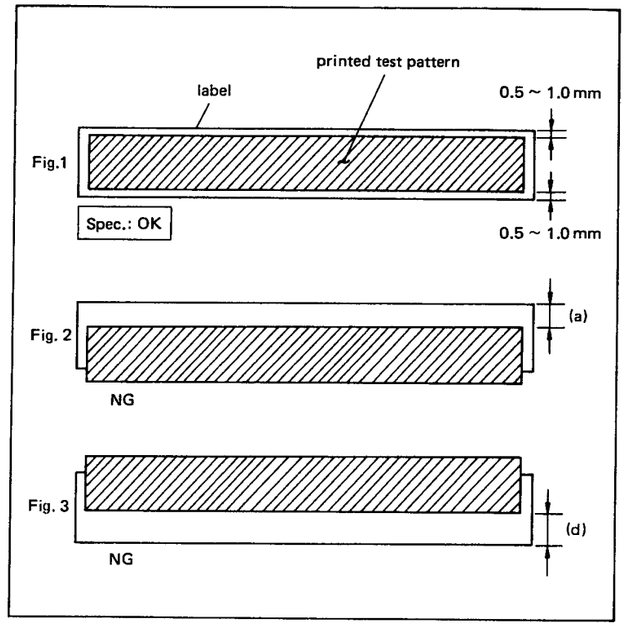
Adjustment procedure:

. When the label is affixed as shown Fig. 2.

(1) Measure the length of (a).
(2) Confirm the switch setting state of Dip Switch 3 Bit 1 to 4, and find the numerical value from the table.
(3) Confirm how much the printing position shifts with the following equation.
a - 0.75 = A
NOTE: 0.75 mm is the middle value of tolerance (0.5 through 1.0) of accurate printing position.
(4) Confirm how much the printing position should be moved as compared with the step (2) state using the following equation.
(the numerical value in step (2)) - A = B
(5) Referring to the table, perform the Dip Switch 3 setting suiting to this value "B".

"Example"

. When (a) is 1.2 mm and when the Dip Switch setting is as follows:
Bit 1: OFF, Bit 2: ON
Bit 3: ON , Bit 4: ON
. 1.085 mm is the printing movement quantity with the above-mentioned Dip Switch setting.
. Confirm how much the printing position shifts.
1.2 - 0.75 = 0.45
. Calculate additional movement quantity.
1.085 - 0.45 = 0.635



. Find the closest value to this numerical value from the table. It is 0.620.
. Perform the Dip switch 3 setting is as follows:
Bit 1: OFF, Bit 2: ON
Bit 3: OFF, Bit 4: OFF

(6) Re-confirm the position of the affixed label is satisfied to the specification.
If the specification isn't met, adjust again.

. When the label is affixed as shown Fig. 3.

(7) Measure the length of (d).
(8) Confirm the switch setting state of Dip Switch 3 as step (2), and find the numerical value from the table.
(9) Confirm how much the printing position shifts with the following equation as step (3).
(d) - 0.75 = D
(10) Confirm how much the printing position should be moved as compared with the Dip Switch setting in step (8), using the following equation.
(the numerical value in step (7)) + D = E
(11) Perform the Dip Switch 3 setting suiting to "E" referring to the table.

"Example"

. When (d) is 1.2 mm and when the Dip Switch 3 setting is as follows:
Bit 1: OFF, Bit 2: ON
Bit 3: ON , Bit 4: ON
. 1.085 mm is the printing movement quantity with the above-mentioned Dip Switch setting.
. Confirm how much the printing position shifts.
1.2 - 0.75 = 0.45
. Calculate additional movement quantity.
1.085 + 0.45 = 1.535
. Find the closest value to this numerical value from the table. It is 1.550.
. Perform the Dip switch 3 setting is as follows:
Bit 1: ON, Bit 2: OFF
Bit 3: ON, Bit 4: OFF

Dip Switch 3 Bit No.				Printing Movement Quantity
1	2	3	4	
OFF	OFF	OFF	OFF	0
OFF	OFF	OFF	ON	0.155
OFF	OFF	ON	OFF	0.310
OFF	OFF	ON	ON	0.465
OFF	ON	OFF	OFF	0.620
OFF	ON	OFF	ON	0.775
OFF	ON	ON	OFF	0.930
OFF	ON	ON	ON	1.085
ON	OFF	OFF	OFF	1.240
ON	OFF	OFF	ON	1.395
ON	OFF	ON	OFF	1.550
ON	OFF	ON	ON	1.705
ON	ON	OFF	OFF	1.860
ON	ON	OFF	ON	2.015
ON	ON	ON	OFF	2.170
ON	ON	ON	ON	2.325

(mm)

(12)Re-confirm the position of the affixed label is satisfied to the specification. If the specification isn't met, adjust again.

4-3. PRINTING POSITION ADJUSTMENT (continuous printing)

Mode: TEST 1 mode

Check procedure:

(1) Perform the TEST 1 mode.

(2) Confirm that the printing position is satisfied with the specification.

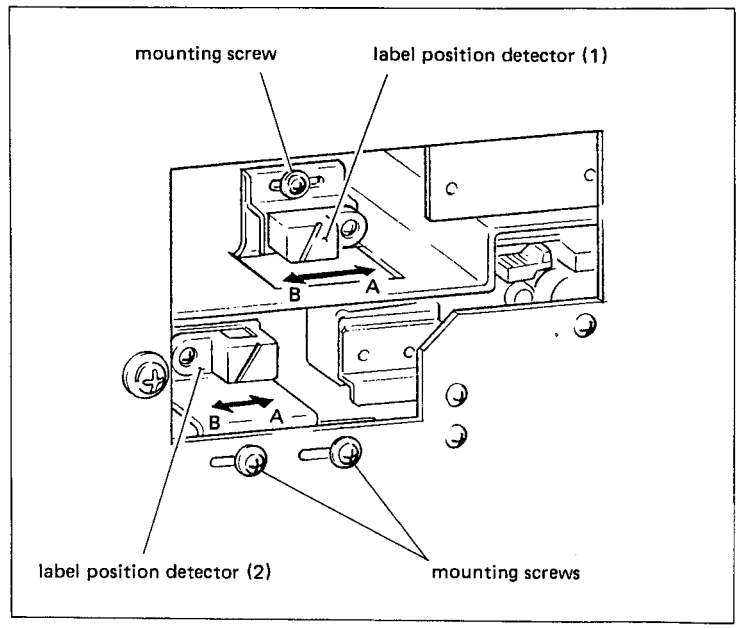
Adjustment procedure:

(1) Remove the right side panel.

(2) When the printed patterns protrude from the upper of the label, loosen the mounting screws which mount label position detectors (1) and (2).

(3) Adjust the position of the label position detectors (1) and (2) by moving in the direction of arrow A so that the specification is met.

(4) When the printed patterns protrude from the lower of the label, adjust the label position detectors (1) and (2) by moving in the direction of arrow B so that the specification is met.



4-4. SHADING ADJUSTMENT

Mode: TEST 1 mode

Check procedure:

(1) Confirm the thickness of the ink on the right and left sides of print in TEST pattern are same.

Adjustment procedure:

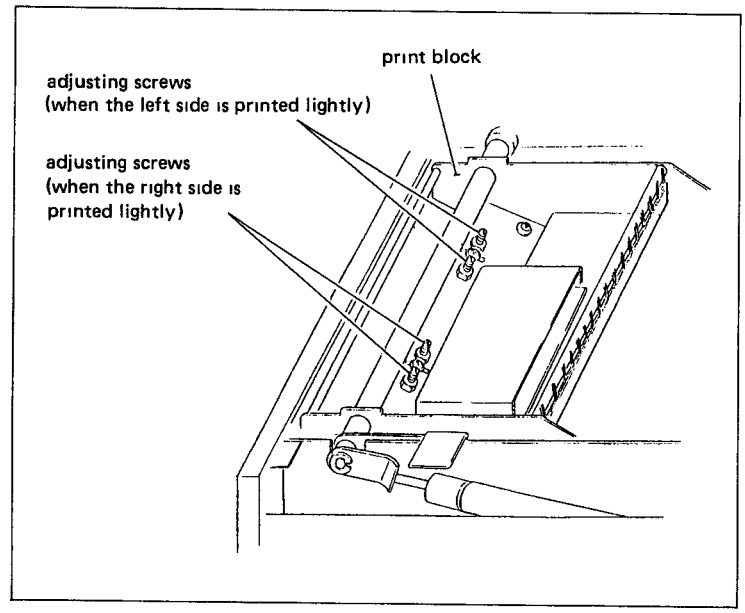
. When the right side is printed lightly,

(1) Adjust the two adjusting screws of the right side on the upper of the Print Block turning in the clockwise direction so that the specification is met.

(2) Check according to the Check procedure.

. When the left side is printed lightly,

(3) Adjust the two adjusting screws of the left side on the upper of the Print Block turning in the clockwise direction so that the specification is met.



4-5. HOLD SPRING POSITION ADJUSTMENT

Mode: Print Block is up state.

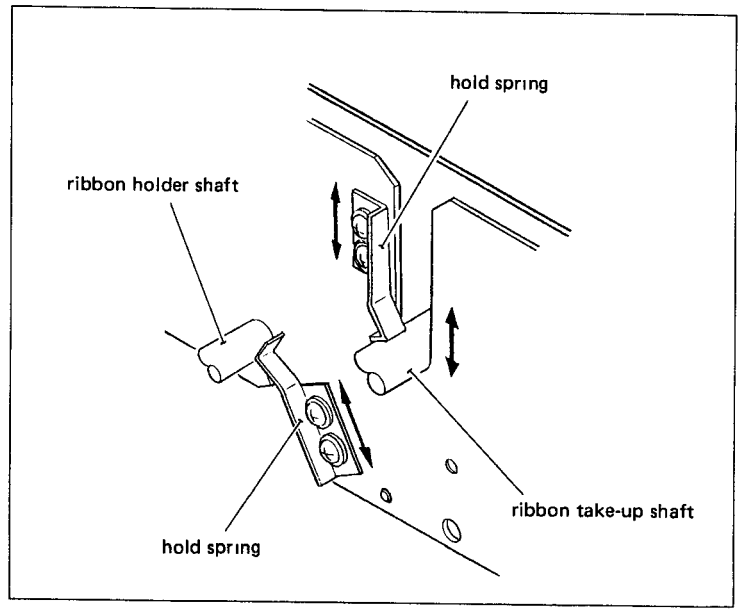
Check procedure:

(1) Confirm that the play isn't located when Ribbon Holder Shaft is moved in the direction of arrow lightly.
(Confirm the right and left sides of the Ribbon Holder Shaft.)

(2) Confirm that the play isn't located when the Ribbon Take-up Shaft is moved in the direction of arrow lightly.

Adjustment procedure:

(1) Adjust the position of the Hold Spring to meet the required specifications.



SECTION 5
ELECTRICAL ALIGNMENT

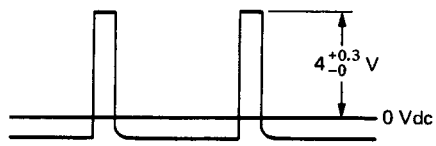
[Required equipment]

- DC Voltmeter or Oscilloscope
- Thermometer

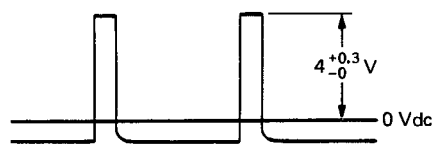
5-1. POWER STOPPAGE DETECTION LEVEL ADJUSTMENT

Conditions for adjustment	Specifications	Adjustment
	MECHANICAL CENTER	⊘ RV1/CPU

5-2. RIBBON DETECTOR ADJUSTMENT

Conditions for adjustment	Specifications	Adjustment
Take off the Ribbon.	TP5/CPU 	⊘ RV2/CPU

5-3. LABEL POSITION DETECTOR ADJUSTMENT

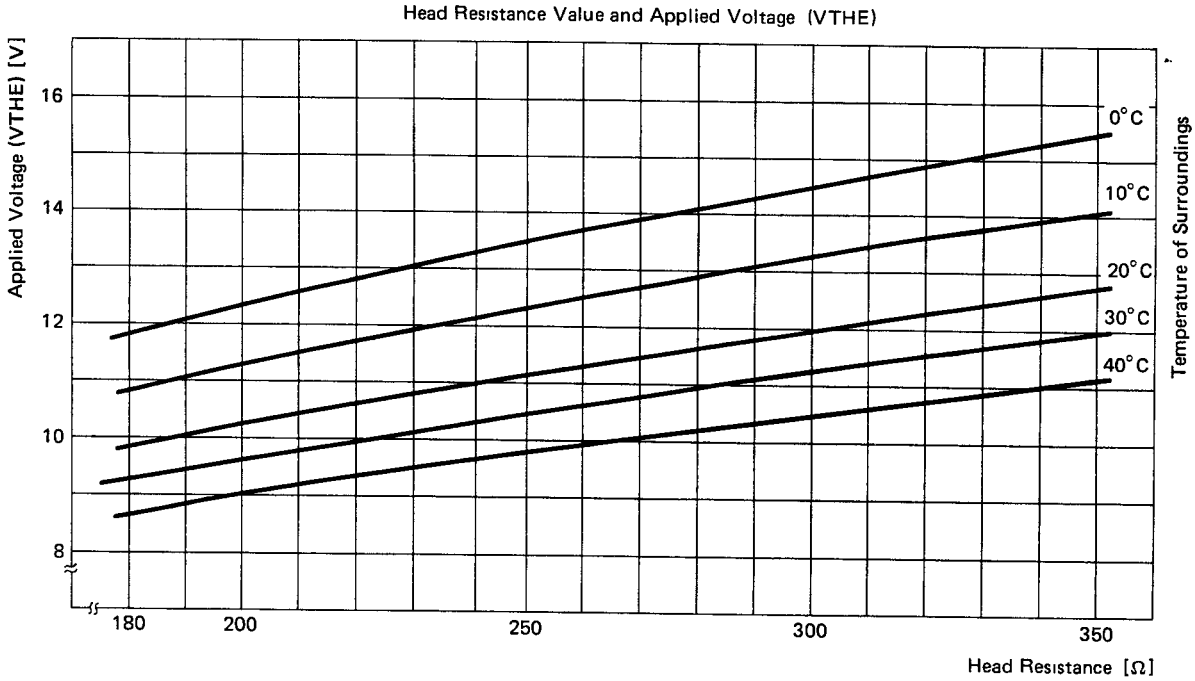
Conditions for adjustment	Specifications	Adjustment
Take off the Label.	TP4/CPU 	⊘ RV3/CPU

5-4. THERMAL HEAD APPLIED VOLTAGE ADJUSTMENT

Step 1. Decision of Applied Voltage
(1) Take the temperature of surroundings.
(2) Check the Head Resistance Value, recorded on the Thermal Head.
(3) Determine the applied voltage by the temperature of surroundings and the Head Resistance Value.

(ex.) The Temperature of surroundings: 20°C
The Head Resistance Value: 300Ω

Applied voltage = 12 [V]



Step 2. Applied Voltage Adjustment

Conditions for adjustment	Specifications	Adjustment
This is performed, over 10 minutes after POWER ON.	TP1 Applied Voltage, determined in Step 1.	⊘ RV1/VRU

Step 3. Barcode Label Check
(1) Print out the Standard Barcode Label.
(See sec. 3-1. TEST MODE 3. TEST 3)
(2) Affix the Standard Barcode Label to a cassette.
(3) Check that Barcode can be read by BVC-E10 Manual Barcode Reader.

Step 4. In the Case that Barcode Cannot be Read.
Step 3 is performed, after change the applied voltage within the limits of adjustment value ±0.5 V

Step 5. In the Case that Barcode Cannot be Read after Perform Step 4.
Sec. 4. MECHANICAL ALIGNMENT is performed, and after Step 2 are performed repeatedly

Write down the following items.
1. Serial No. and Resistance Value of Thermal Head.
2. The temperature of surroundings in adjusting.
3. Applied voltage (VTHE)

UPDATE INFORMATION

DATE MAR/22/90
MODEL NAME BVBP-12/14 (UC/EK) Maintenance Manual Vol-1
REVISION NO. 1st Edition Revised 2

Rev. No.	S. No.	Action	Page
E1 R2	BVBP-12 UC : 10401 -10420 EK : N. A. BVBP-14 UC : N. A. EK : N. A.	Add	Table of Contents
		Add	4-5, 6

1) "Rev. No." is the corresponding revised number of the service manual for the customer.
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2) The changed portions are indicated by doted line and/or "**" (double asterisk).

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The machine for the different market, e,g. Japan, may exist for this manual revision.

4-1-1. Label Inclination Adjustment

Adjustment is performed when the label is not affixed at the right position by the field adjustment of DIP switch.

(Symptom 1) The label is not affixed in parallel with the cassette tape.

Check procedure:

(1) Feed the label.
(2) Release the lock of affixing assembly and open the cassette holder gently so as not to move the label.
(3) Measure the amount of protruding label with a scale. (Fig. 2)
(4) Adjust the position so that |A-B| < 0.5mm is realized.

Adjustment procedure:

When the label is as shown in Fig. 1.
If the label is protruding on one side, adjust the inclination of the roller to place the label in parallel with the cassette tape.

(1) Loosen the screws (a) when A > B and move the roller holder in the direction of C. (Fig. 3)
(2) Move the roller in the direction of D when A < B. (Fig. 3)

Repeat 1 to 4 of the check method.

Note: Do not move too much. Move less than 0.5mm at a time.

If the label is still inclined, repeat the parallel adjustment method.
If the label is placed in parallel, perform the label feed amount adjustment.

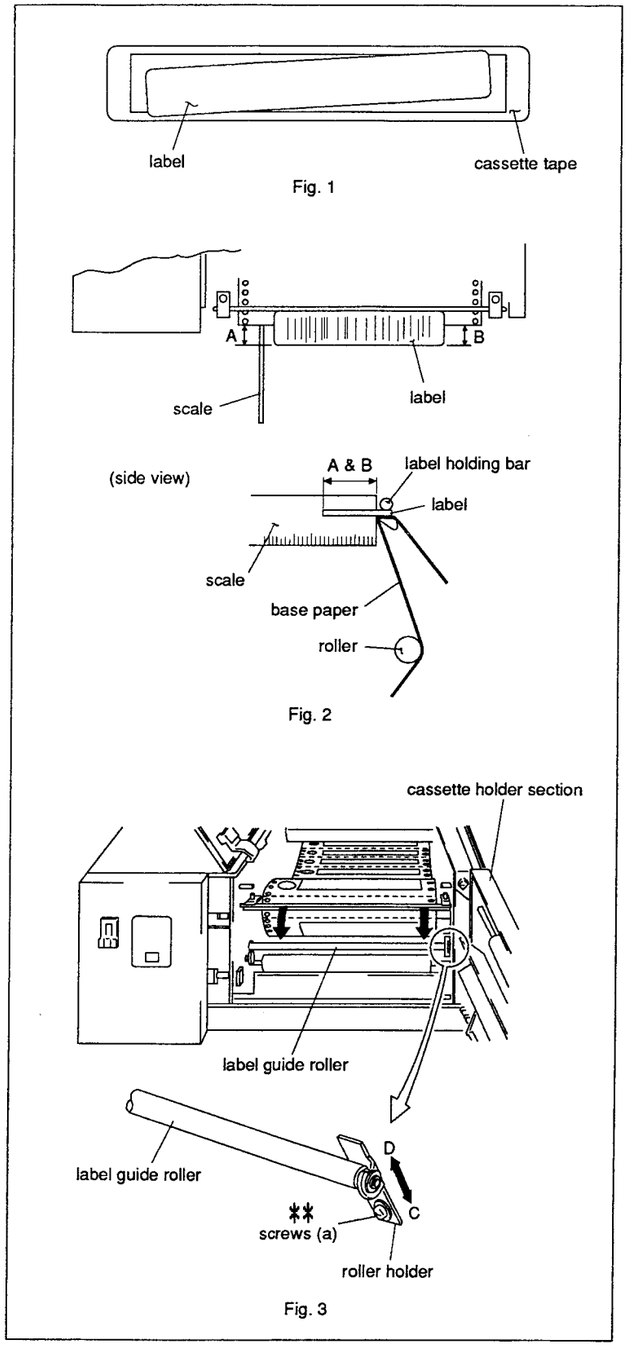


Fig. 1
Fig. 2
Fig. 3

(Symptom 2) The label has shrinks. (It is not affixed in parallel.)
Adjust the stamp roller.

Check procedure:

(1) Power off.
(2) Insert the cassette holder and raise the cassette tape gently to the stamp roller until one side of the cassette touches the stamp roller. (See Fig. 1)
(3) When one side touches the roller, check the clearance. (The clearance should be within the specification.)

Adjustment procedure:

(1) If the clearance is outside the specification, loosen the screws and adjust the bracket by moving it up and down. (See Fig. 2)
(2) Check if the clearance is within the specification by the check procedure.

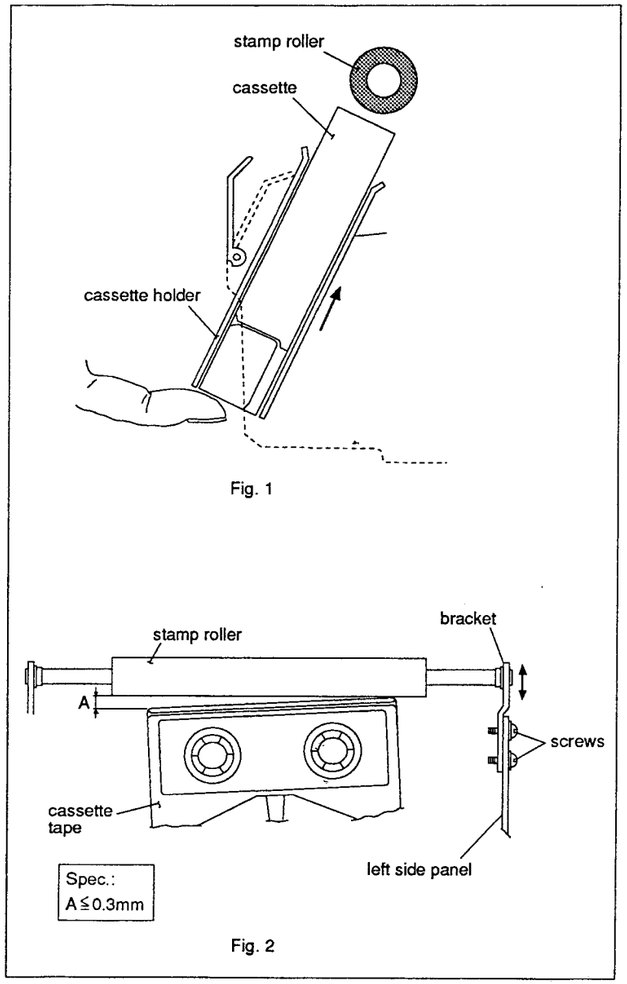
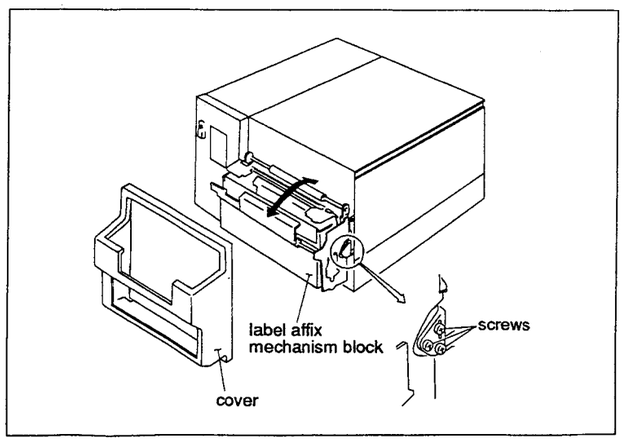


Fig. 1
Fig. 2

(Symptom 3) Adjustment cannot be made by the DIP switch only.

Adjustment procedure:

(1) Remove the cover.
(2) Adjust the setting of bit 5 through bit 8 of the DIP switch 1 in the range of -0.155 to +0.155mm.
(3) Loosen the three screws and adjust the whole label affix mechanism block in the direction of the arrow.
(4) Fix the screws and check the affixing operation.



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8. SCHEMATIC DIAGRAMS

9. PRINTED WIRING BOARDS

10. SPARE PARTS

UPDATE INFORMATION

MODEL NAME: BVBP-12/14 (UC/EK)

REVISION NO.: Maintenance Manual Vol-1, 1st Edition Revised 3

DATE: 1991. 5

BACKUP FILE

Rev. No.	S. No.	Action	Page
E1 R2	BVBP-12 UC: 10401 -10420 EK: N.A. BVBP-14 UC: N.A. EK: N.A.	Add	Table of Contents
		Add	4-5, 6
E1 R3	BVBP-12 UC: 10601 and higher EK: 20201 and higher BVBP-14 UC: 10501 and higher EK: 20201 and higher	Add	4-5

1) "Rev. No." is the corresponding revised number of the service manual for the customer.
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"Serial Number" is the serial number range which the Rev. No. in the left column covers.

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BACKUP FILE

UPDATE INFORMATION

MODEL NAME **BVBP-12/14 (UC/EK)**
Maintenance Manual Vol-1

REVISION NO. 1st Edition Revised 4

DATE 1991. 9

Rev. No.	S. No.	Action	Page
E1 R2	BVBP-12 UC: 10401 -10420 EK: N.A. BVBP-14 UC: N.A. EK: N.A.	Add	Table of Contents
		Add	4-5, 6
E1 R3	BVBP-12 UC: 10601 -10700 EK: 20201 -20300 BVBP-14 UC: 10501 and higher EK: 20201 -20800	Add	4-5
E1 R4	BVBP-12 UC: 10701 and higher EK: -20301 and higher BVBP-14 UC: N.A. EK: 20801 and higher	Replace	Table of Contents
			1-2, 3
			4-4, 9 to 12
		Add	4-5 to 8

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6. BLOCK DIAGRAM

7. SEMICONDUCTOR ELECTRODES

8. SCHEMATIC DIAGRAMS

9. PRINTED WIRING BOARDS

10. SPARE PARTS

1-4. SELECT SWITCH SETTING

The following select switches are located on the left side panel. The swiches must be used according to each system configulation.

(1) DIP SW 1

Bit 1: TEST MODE ON/OFF switch
Refer to Sec. 3-1 for details.
ON : TEST MODE
OFF: NORMAL MODE
When the set is shipped, the TEST MODE ON/OFF switch is set to the OFF position.

Bit 2: DATA PROTOCOL select switch
ON : XON/XOFF
OFF: READY/BUSY (DTR)
When the set is shipped, the DATA PROTOCOL select switch is set to the OFF position.

**

Bit 3: PRINTER MODE select switch
ON : FREE FORMAT
OFF: SONY LMS STANDARD
When the set is shipped, the PRINTER MODE select switch is set to the OFF position.

(2) DIP SW 2

Bit 1, Bit 2: BAUD RATE select switch

BAUD RATE	Bit 1	Bit 2
1200	OFF	OFF
2400	ON	OFF
4800	OFF	ON
9600	ON	ON

When the set is shipped, BAUD RATE select switches, Bit 1 and Bit 2, are set to the ON position.

Bit 3: WORD LENGTH select switch
ON : 8
OFF: 7
When the set is shipped, the WORD LENGTH select switch is set to the ON position.

Bit 4: STOP BIT select switch
ON : 2
OFF: 1
When the set is shipped, the STOP BIT select switch is set to the OFF position.

Bit 5: PARITY CHECK ON/OFF select switch
ON : PARITY is EVEN.
OFF: PARITY is ODD.
When the set is shipped, the PARITY CHECK ON/OFF select switch is set to the ON position.

Bit 6: PARITY CHECK select switch
Select the processing of the PARITY BIT.
ON : PARITY BIT is ON.
OFF: PARITY BIT is OFF.
When the set is shipped, the PARITY CHECK select switch is set to the ON position.

Bit 7: CHARACTER select switch
ON : Japanese
OFF: English
When the set is shipped, the CHARACTER select switch is set to the OFF position.

Bit 8: INTERFACE select switch
ON : RS232C I/F control
OFF: CENTRONICS I/F control
When the set is shipped, the INTERFACE select switch is set to the OFF position.

✱✱1-5. RACK MOUNTING

The BVBP-12/14 can be mounted in a 19-inch standard rack. When being mounted, it is recommended to use the following SONY rack mount angle RMM-950 (optional accessory).

1. Attach the inner members of the rack mount angle to the right and left side panels with the three mounting screws (B4x6), which are supplied with this set.

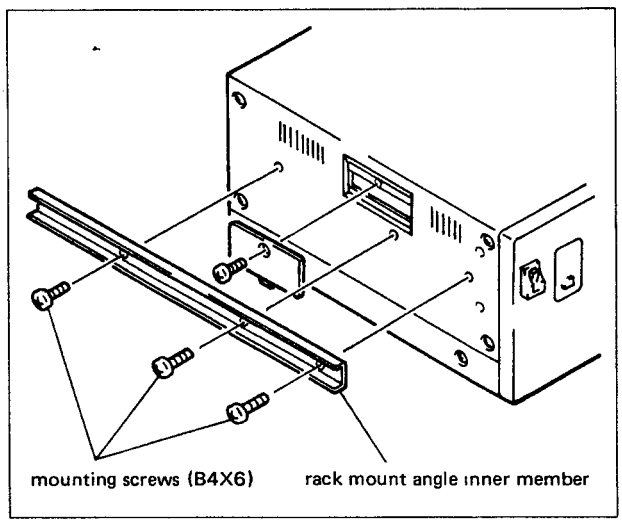


Fig. 1-4

2. Remove the four legs located under the set.
3. Attach the outer member bracket of the rack mount angle to the rack.
4. Attach the rack mount handles on the right and left side panels with the two mounting screws (B4x10), which are supplied with this set.

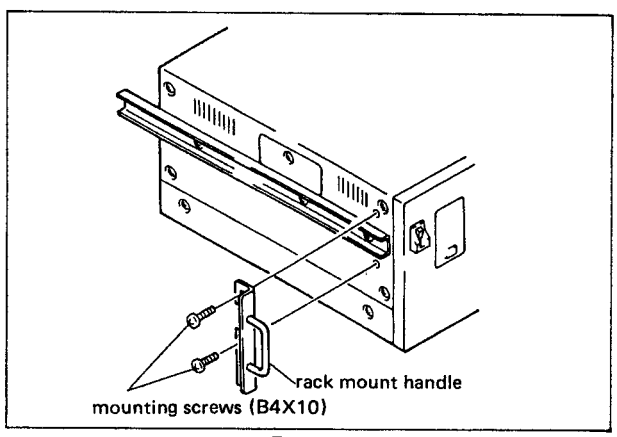


Fig. 1-5

1-6. SUPPLIED ACCESSORY

Supplied BVBP-12/14 accessories are as follows.

1. Printer Ribbon
A printer ribbon can print four thousand Barcode Labels.

2. Barcode Label
A roll of the Barcode Label contains twelve hundred Barcode Labels.

3. Head Cleaner
Use for cleaning the Thermal Head. The head cleaner is provided as a service part.
part number : 9-987-785-01

4. Power Cord

5. Operation Manual

6. Maintenance Manual

1-7. OPTIONAL ACCESSORY

SONY PRINTER RIBBON (BVCR-11)
SONY BARCODE LABEL (BVCP-10)
SONY RACK MOUNT ANGLE (RMM-950)

4-1-1. Label Feed Inclination Adjustment

Adjustment is performed when the label is not affixed at the right position by the field adjustment of DIP switch.

(Symptom) The label is not affixed in parallel with the cassette tape.

Check procedure:

(1) Feed the label.
(2) Release the lock of affixing assembly and open the cassette holder gently so as not to move the label.
(3) Measure the amount of protruding label with a scale. (Fig. 2)
(4) Adjust the position so that |A-B| < 0.5mm is realized.

Adjustment procedure:

When the label is as shown in Fig. 1.
If the label is protruding on one side, adjust the inclination of the roller to place the label in parallel with the cassette tape.

(1) Loosen the screws (a) when A > B and move the roller holder in the direction of C. (Fig. 3)
(2) Move the roller in the direction of D when A < B. (Fig. 3)

Repeat 1 to 4 of the check method.

Note: Do not move too much. Move less than 0.5mm at a time.

If the label is still inclined, repeat the parallel adjustment method.
If the label is placed in parallel, perform the label feed amount adjustment.

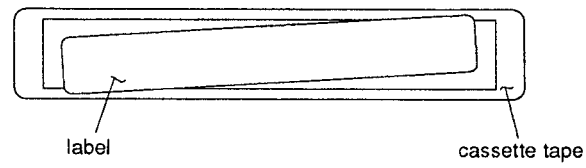


Fig. 1

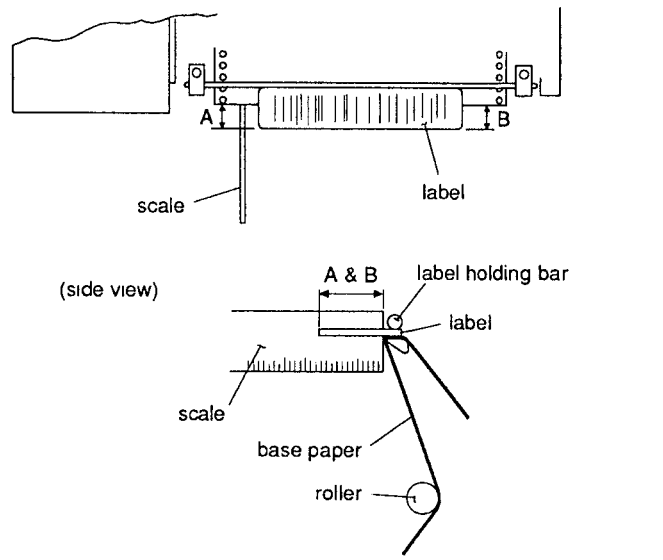


Fig. 2

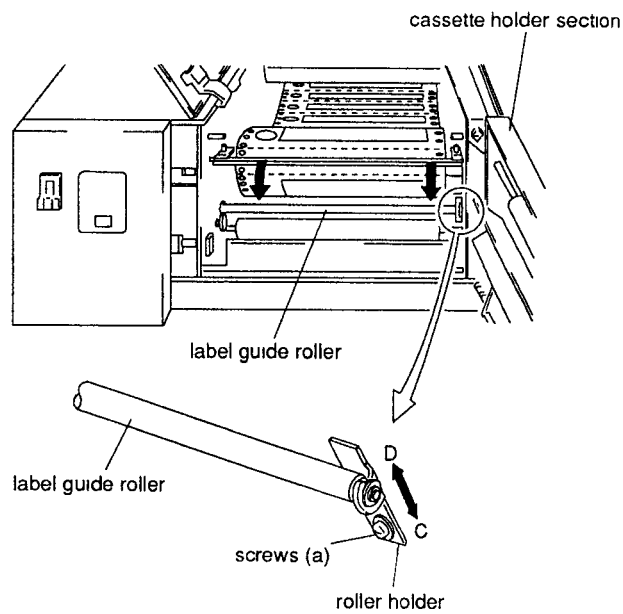


Fig. 3

✱✱ 4-1-2. Stamp Roller Hight Adjustment

(Symptom) The label has shrinks. (It is not affixed in parallel.)
Adjust the stamp roller.

Check procedure:

(1) Power off.

(2) Insert the cassette holder and raise the cassette tape gently to the stamp roller until one side of the cassette touches the stamp roller. (See Fig. 1)

(3) When one side touches the roller, check the clearance. (The clearance should be within the specification.)

Adjustment procedure:

(1) If the clearance is outside the specification, loosen the screws and adjust the bracket by moving it up and down. (See Fig. 2)

(2) Check if the clearance is within the specification by the check procedure.

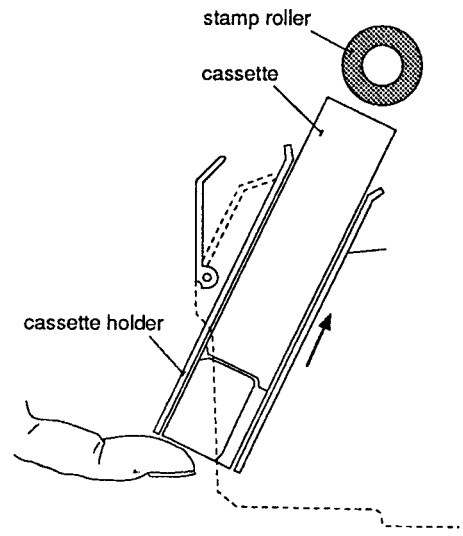


Fig. 1

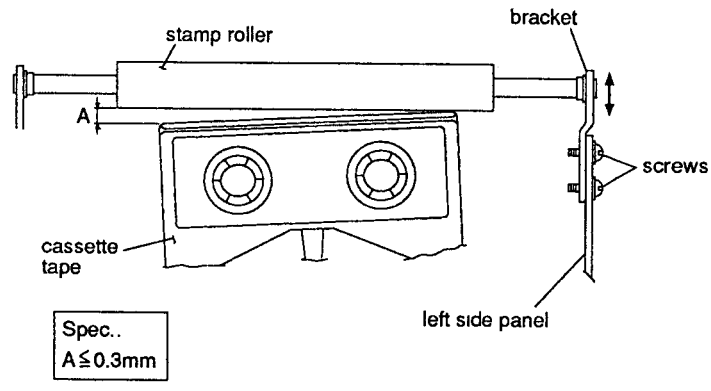


Fig. 2

✱✱

**

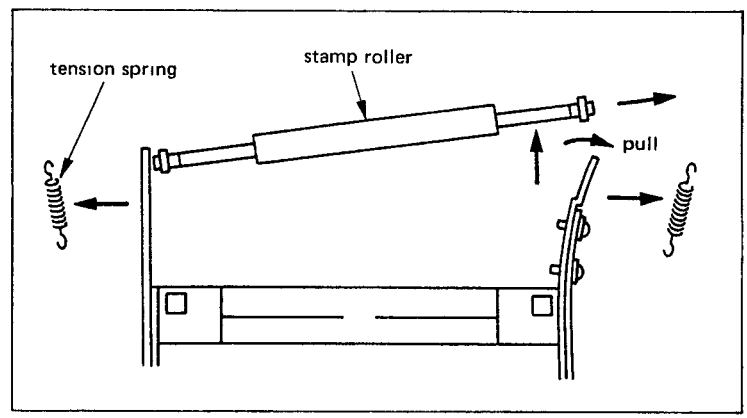
4-1-3. Label Affix Mechanism Block Position Adjustment

(Symptom) Incorrect affixing position of the label cannot be improved by the adjustment 4-1, 4-1-1 and 4-1-2.

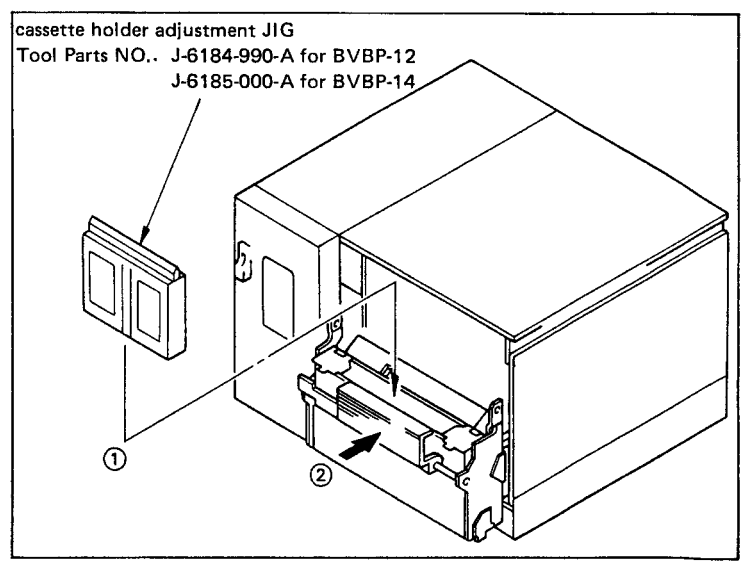
Check Procedure:

(1) Power off. Remove the cover.

(2) Remove the stamp roller and two tension springs.
(To remove the stamp roller, pull the top end of the right side plate to the outer side.)



(3) Insert the cassette holder adjustment JIG into the holder and push it toward the body.

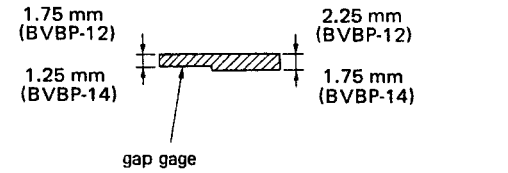


**

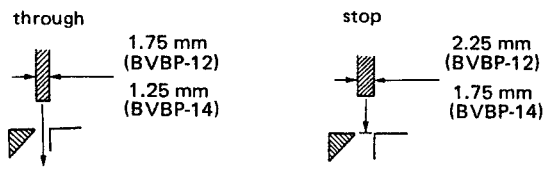
(4) Check that the clearance and the difference of hight between the separator and the bar of JIG is within the specifications. (X1, X2, Y1, Y2)
(To check the clearance, use the gap gage as shown.)

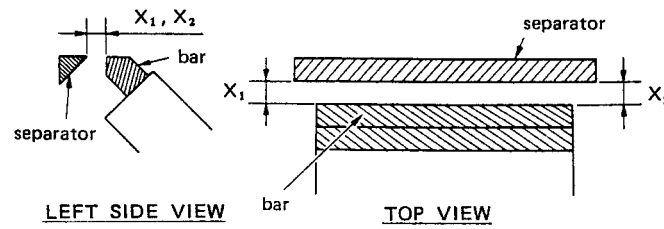
(5) If the specification is not satisfied, adjust the position of label affix mechanism block.

How to check the specifications above

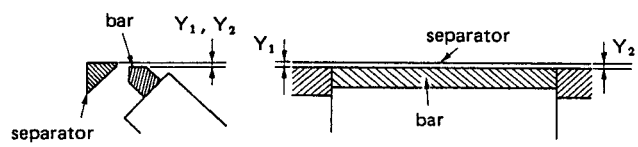


Tool Parts NO.. J-6184-990-A for BVBP-12
J-6185-000-A for BVBP-14





Spec.. BVBP-12: X_1, X_2=2.0±0.25 mm
BVBP-14: X_1, X_2=1.5±0.25 mm



Spec.. Y_1, Y_2=0 to 1.0 mm, $|Y_1 - Y_2| \leq 0.5$ mm

**

Adjustment procedure:

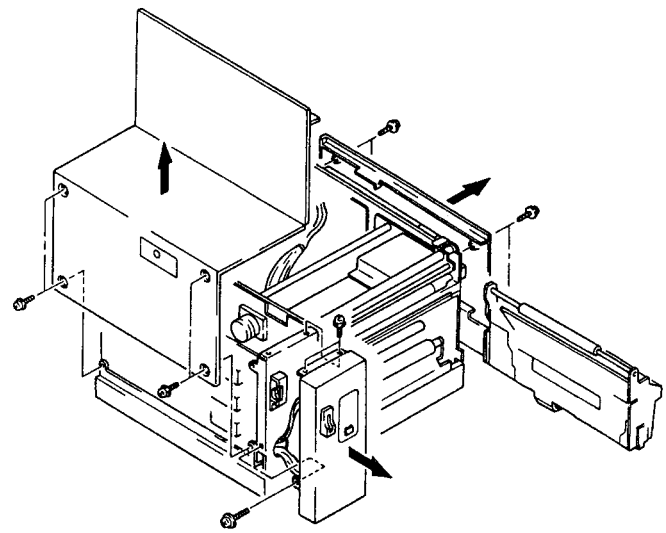
(1) Remove the panels.

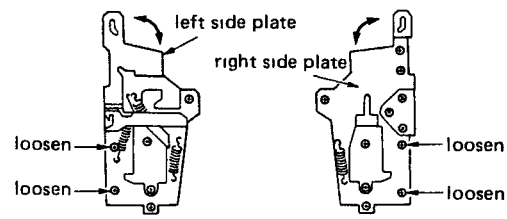
(2) Loosen the three screws which fix the stopper L and R.

(3) Adjust the Label affix mechanism block so that the bar of the JIG is in parallel with the separator.
(To reduce the difference between X1 and X2, loosen the four screws and move the right and left side plate as shown.)

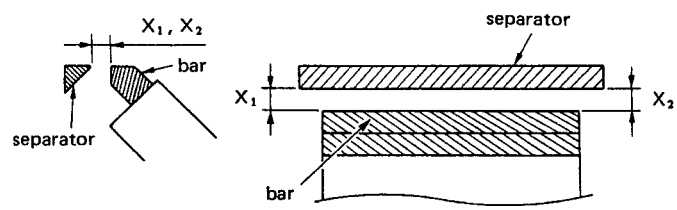
(4) Remove the cassette holder adjustment JIG and install the stamp roller again.

(5) Check the clearance between the shaft of the stamp roller and the separator.
If the specification is not satisfied, repeat step 3.



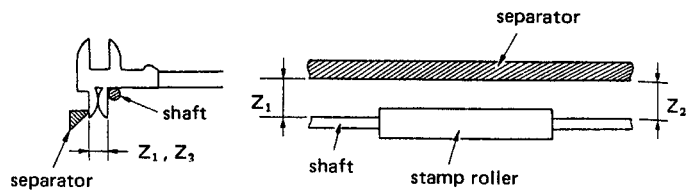


LEFT SIDE RIGHT SIDE



LEFT SIDE VIEW TOP VIEW

Spec.. $|X_1 - X_2| \leqq 0.5$ mm



LEFT SIDE VIEW TOP VIEW

Spec.. $|Z_1 - Z_2| \leqq 0.5$ mm

**

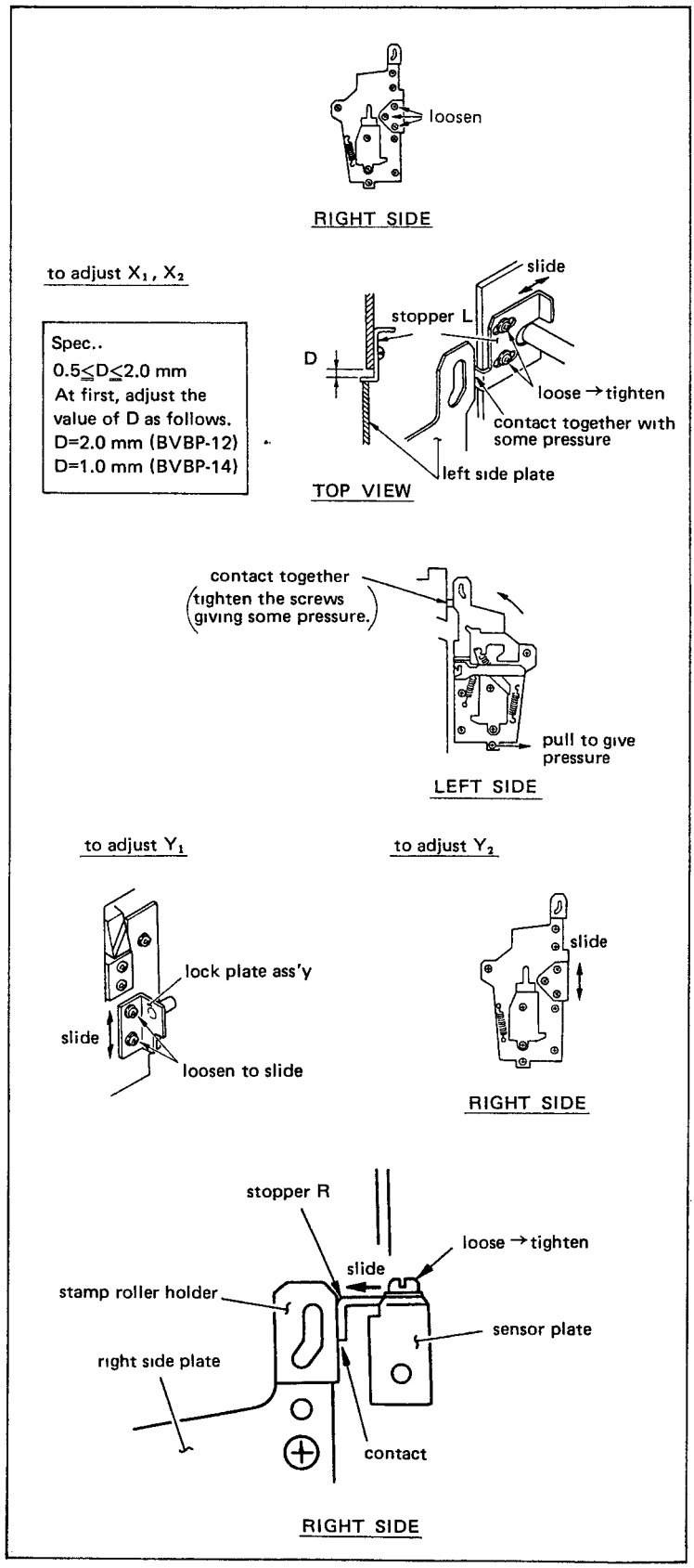
(6) Remove the stamp roller and set the cassette holder adjustment JIG again.

(7) Loosen the three screws on the right side plate.
Adjust the label affix mechanism block to realize the specifications of check procedure step 4 at the same time.
Tighten the screws on the right side plate and stopper L.
(To fix the block tightly, tighten the screws giving some pressure between the stopper L and the left side plate as shown.)

(8) Move the stopper R until it contact with the stamp roller holder and tighten the screw.

(9) Apply locking fluid to all the loosened screws.

(10) Perform 4-1. Label feed quantity adjustment.



4-1-4. Adjustment Procedure When Label Affix Mechanism Is Installed

. Perform the mechanical adjustment by following procedure when the Label affix mechanism block is installed.

(1) 4-1-3. Label affix mechanism block position adjustment.

(2) 4-1-2. Stamp roller hight adjustment.

(3) 4-1-1. Label feed inclination adjustment.

(4) 4-1. Label feed quantity adjustment.

4-2. PRINTING POSITION ADJUSTMENT (with Label Affix Mechanism)

. Perform this adjustment when the Label Affix Mechanism is installed.

Mode: TEST 1 mode

Check procedure:

(1) Insert the cassette tape into the Label Affix Mechanism.
(2) Perform the TEST 1 mode.
(3) Affix the printed label by TEST 1 mode.
(4) Confirm the position of the affixed label is satisfied to the specification.

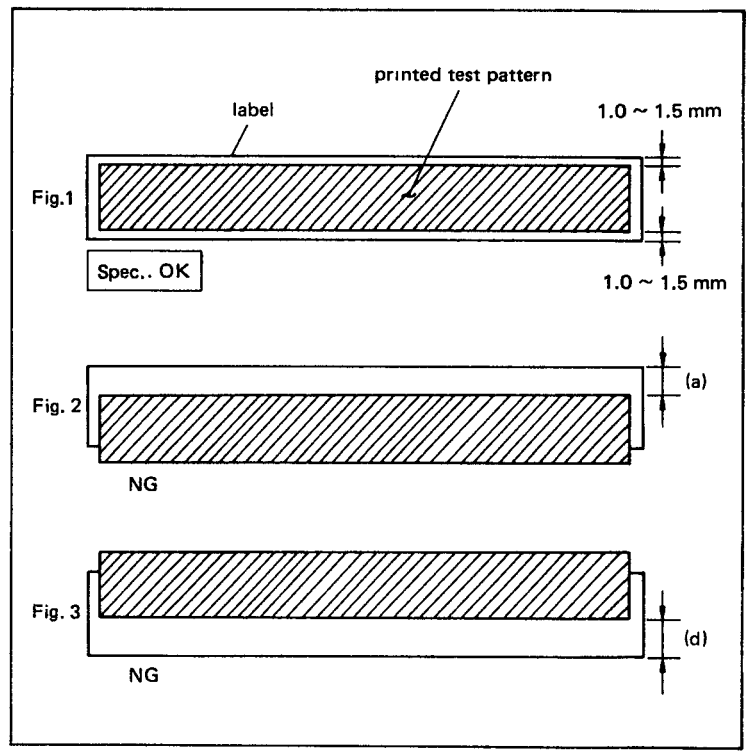
Adjustment procedure:

. When the label is affixed as shown Fig. 2.

(1) Measure the length of (a).
(2) Confirm the switch setting state of Dip Switch 3 Bit 1 to 4, and find the numerical value from the table.
(3) Confirm how much the printing position shifts with the following equation.
    a - 0.75 = A
    NOTE: 0.75 mm is the middle value of tolerance (0.5 through 1.0) of accurate printing position.
(4) Confirm how much the printing position should be moved as compared with the step (2) state using the following equation.
    (the numerical value in step (2)) - A = B
(5) Referring to the table, perform the Dip Switch 3 setting suiting to this value "B".

"Example"

. When (a) is 1.2 mm and when the Dip Switch setting is as follows:
  Bit 1: OFF, Bit 2: ON
  Bit 3: ON , Bit 4: ON
. 1.085 mm is the printing movement quantity with the above-mentioned Dip Switch setting.
. Confirm how much the printing position shifts.
  1.2 - 0.75 = 0.45
. Calculate additional movement quantity.
  1.085 - 0.45 = 0.635



. Find the closest value to this numerical value from the table. It is 0.620.
. Perform the Dip switch 3 setting is as follows:
Bit 1: OFF, Bit 2: ON
Bit 3: OFF, Bit 4: OFF

(6) Re-confirm the position of the affixed label is satisfied to the specification. If the specification isn't met, adjust again.

. When the label is affixed as shown Fig. 3.

(7) Measure the length of (d).
(8) Confirm the switch setting state of Dip Switch 3 as step (2), and find the numerical value from the table.
(9) Confirm how much the printing position shifts with the following equation as step (3).
(d) - 0.75 = D
(10) Confirm how much the printing position should be moved as compared with the Dip Switch setting in step (8), using the following equation.
(the numerical value in step (7)) + D = E
(11) Perform the Dip Switch 3 setting suiting to "E" referring to the table.

"Example"
. When (d) is 1.2 mm and when the Dip Switch 3 setting is as follows:
Bit 1: OFF, Bit 2: ON
Bit 3: ON , Bit 4: ON
. 1.085 mm is the printing movement quantity with the above-mentioned Dip Switch setting.
. Confirm how much the printing position shifts.
1.2 - 0.75 = 0.45
. Calculate additional movement quantity.
1.085 + 0.45 = 1.535
. Find the closest value to this numerical value from the table. It is 1.550.
. Perform the Dip switch 3 setting is as follows:
Bit 1: ON, Bit 2: OFF
Bit 3: ON, Bit 4: OFF

Dip Switch 3 Bit No.				Printing Movement Quantity
1	2	3	4	
OFF	OFF	OFF	OFF	0
OFF	OFF	OFF	ON	0.155
OFF	OFF	ON	OFF	0.310
OFF	OFF	ON	ON	0.465
OFF	ON	OFF	OFF	0.620
OFF	ON	OFF	ON	0.775
OFF	ON	ON	OFF	0.930
OFF	ON	ON	ON	1.085
ON	OFF	OFF	OFF	1.240
ON	OFF	OFF	ON	1.395
ON	OFF	ON	OFF	1.550
ON	OFF	ON	ON	1.705
ON	ON	OFF	OFF	1.860
ON	ON	OFF	ON	2.015
ON	ON	ON	OFF	2.170
ON	ON	ON	ON	2.325

(mm)

(12)Re-confirm the position of the affixed label is satisfied to the specification.
If the specification isn't met, adjust again.

4-3. PRINTING POSITION ADJUSTMENT (continuous printing)

Mode: TEST 1 mode

Check procedure:

(1) Perform the TEST 1 mode.

(2) Confirm that the printing position is satisfied with the specification.

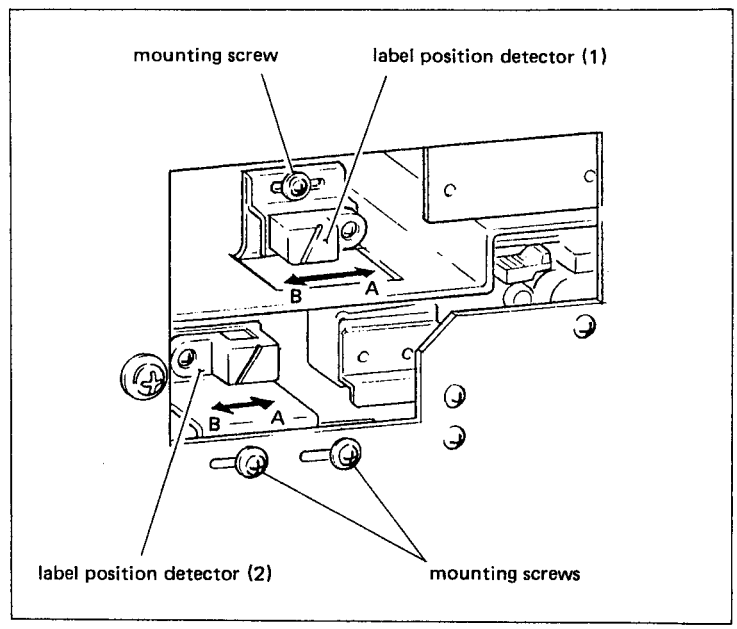
Adjustment procedure:

(1) Remove the right side panel.

(2) When the printed patterns protrude from the upper of the label, loosen the mounting screws which mount label position detectors (1) and (2).

(3) Adjust the position of the label position detectors (1) and (2) by moving in the direction of arrow A so that the specification is met.

(4) When the printed patterns protrude from the lower of the label, adjust the label position detectors (1) and (2) by moving in the direction of arrow B so that the specification is met.



4-4. SHADING ADJUSTMENT

Mode: TEST 1 mode

Check procedure:

(1) Confirm the thickness of the ink on the right and left sides of print in TEST pattern are same.

Adjustment procedure:

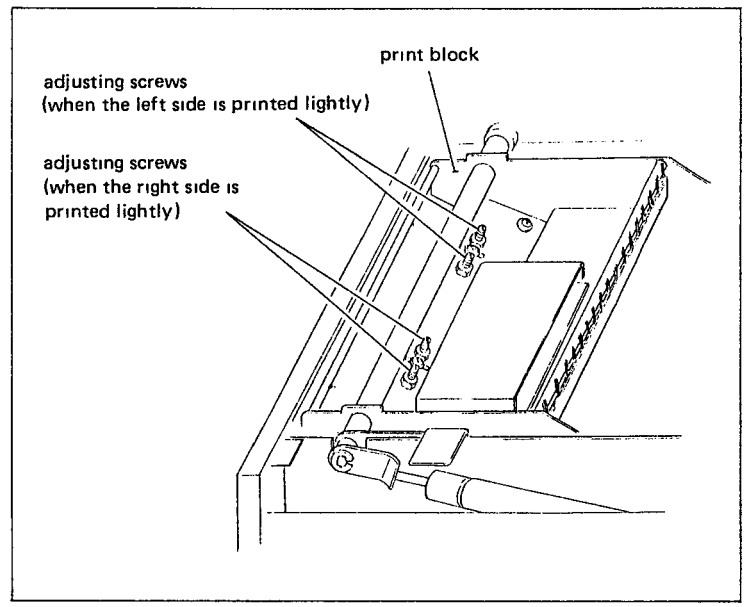
. When the right side is printed lightly,

(1) Adjust the two adjusting screws of the right side on the upper of the Print Block turning in the clockwise direction so that the specification is met.

(2) Check according to the Check procedure.

. When the left side is printed lightly,

(3) Adjust the two adjusting screws of the left side on the upper of the Print Block turning in the clockwise direction so that the specification is met.



4-5. HOLD SPRING POSITION ADJUSTMENT

Mode: Print Block is up state.

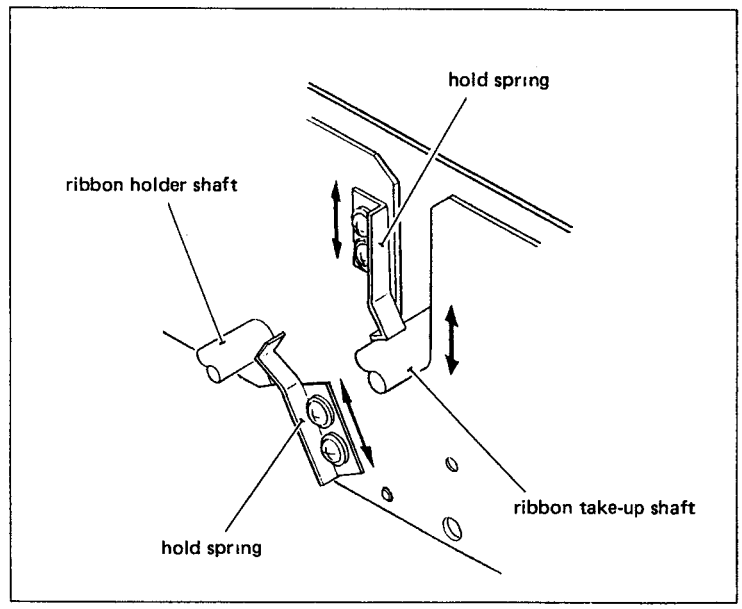
Check procedure:

(1) Confirm that the play isn't located when Ribbon Holder Shaft is moved in the direction of arrow lightly.
(Confirm the right and left sides of the Ribbon Holder Shaft.)

(2) Confirm that the play isn't located when the Ribbon Take-up Shaft is moved in the direction of arrow lightly.

Adjustment procedure:

(1) Adjust the position of the Hold Spring to meet the required specifications.



SONY

NOV. 1989

SERVICE ENGINEERS

RE: UPDATE INFORMATION

We'll issue the UPDATE INFORMATION instead of revised manual every time when the service manual is revised.
This UPDATE INFORMATION consists on pages which has some changes.
Please refer the attached details.

At the first distribution of UPDATE INFORMATION for each models, we send the master manual also with UPDATE INFORMATION after second time, we send only UPDATE INFORMATION without revised manual, so please note the information you need on the master manual, if any.

Y. ORIHARA
Service Engineering Department

DETAIL OF UPDATE INFORMATION

MODEL FOR THIS ISSUE

All models of BC. and INST

ACTION OF UPDATE INFORMATION

ACTION is explanation of the action of service engineer who receives UPDATE INFORMATION.

— Add (action)
— Replace (In having the mistake)
— Remove (Delete each page)

INDICATION OF THE REVISION

Way of indication: 1st Rev 4 → 1R4
Place of indication: At the bottom of binding

CHANGING EDITION

As the master manual distributes when it has new edition, we don't issue the UPDATE INFORMATION.
But the only cover letter of UPDATE INFORMATION is issued with the new edition manual.
Specify about having the editions change on the cover letter, and mention the point of change roughly.

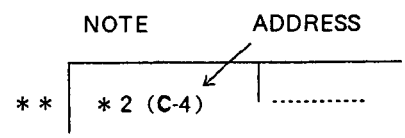
MARKING

1. **Change of letter**
   - Put the " ＊＊ " mark around the reference number of changing item.
   - If half of page or more changes, mark at near the changing part and make a circle around it.
   - If all of page changes, mark above of title.

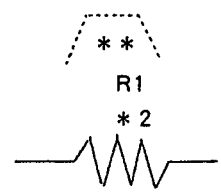
2. **Change of Illustration**
   - If illustration has the title, mark above of title.
     If not, mark at the top left side of illustration plainly.
   - When the whole illustration has change, mark at the top left side out of the frame of illustration.
   - In other case, mark at the plain position.

3. **Change of Circuit**
   - In the case of having the note, mark at the changing part of note, and mark also at the changing part of circuit.
     The address is in the note so as to search the changing part instantly.
   - In the case of not having the note, indicate by " /‾‾‾‾‾\ " , " _____/ " nearly changing part, and mark. (with middle bold line)
   - Example of marking for the circuit

[with note]



[without note]



When the circuit has the Serial No., mark at the above of Serial No. frame.